

**REMARKS**

Claims 1-11 are being cancelled, and new claims 14 and 15 are being added. The amendments to the claims presented herein do not introduce new matter within the meaning of 35 U.S.C. §132. Accordingly, the Examiner is respectfully requested to enter these amendments.

**1. Provisional Double Patenting Rejection**

The Office Action states,

Claims 1-9 and 10-13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-13 of copending Application No. 10/539,242. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application are generic to, i.e., fully encompass, the claims of the copending application, and therefore, the claims of the instant application are anticipated by the claims of the copending application.

**RESPONSE**

Applicant kindly requests the Examiner to hold this rejection in abeyance, since neither the above captioned application, nor copending application with Serial No. 10/539,242 has issued as a patent.

**2. Rejection of Claims 1-4, 6-8 and 11 Under 35 U.S.C. §102(b)**

The Office Action states that claims 1-4, 6-8, and 11 are rejected under 35 U.S.C. §102(b) as being anticipated by WO 01/92346 (herein referred to as "Wang"). In particular, the Office Action

states,

Wang teaches a series of group 5 and 6 transition metal complexes containing a cyclopentadienyl moiety linked to a heteroaromatic group (ii) by bridging group  $TR_5R_6$ , where  $R_5$  and  $R_6$  each independently represent hydrogen or  $C_1-C_8$  hydrocarbyl (claim 1). Inventive complexes are used as catalyst components for polymerization of olefins (see discussion, pages 7 - 13).

**RESPONSE**

Claims 1-4, 6-8 and 11 have been cancelled rendering the above rejection moot. Accordingly, withdrawal of the rejection is respectfully requested.

**3. Rejection of Claims 1-8, and 11 Under 35 U.S.C. §102(b)**

The Office Action states that claims 1-8, and 11 are rejected under 35 U.S.C. §102(b) as being anticipated by WO 01/12641 (herein referred to as "Mihan, et al."). In particular, the Office Action states,

The subject matter of the instant claims is fully anticipated by the prior art. See in particular, claim 1 which teaches compounds containing bridging group  $-L^2(R^{13})(R^{14})-$ , as well as page 8, lines 45-47. Use of the compounds of the invention in a catalyst is discussed thoroughly on pages 14-17.

**RESPONSE**

Claims 1-8 and 11 have been cancelled rendering the above rejection moot. Accordingly, withdrawal of the rejection is respectfully requested.

4. Rejection of Claim 13 Under 35 U.S.C. §103(a)

The Office Action states that claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over WO 01/12641 (herein referred to as "Mihan, et al."). In particular, the Office Action states,

The discussion of the disclosures of the prior art from the previous paragraph of this office action is incorporated here by reference. The examples in Mihan et al. teach preparation of the ligand framework and metal complexes disclosed in the claims and throughout the text. Here, a lithiated heteroaromatic ring system is reacted with an appropriate cyclopentenone precursor, resulting in the formation of a bridged cyclopentadienyl-containing ligand framework. Subsequent ligation to the metal precursor yields the inventive metal complexes. The examples show synthesis of complexes in which the heteroaromatic ring moiety is directly bound to the carbocyclic ring, but the synethesis or a corresponding bridged derivative is not disclosed. This point notwithstanding, it would have been obvious to one having ordinary skill in the art to make ligands in which the heteroaromatic ring moiety is bound to the carbocyclic ring by a bridging group  $-L^2(R^{13})(R^{14})-$  by reacting an anion of form  $[A-L^2(R^{13})(R^{14})]$  with a cyclopentenone precursor, and thereby arrive at the process of the instant claims. One of ordinary skill in the art would have found it obvious to follow the synthetic protocol outlined in the examples because it is a general procedure, and therefore, one of ordinary skill in the art would have expected it to work. One of ordinary skill in the art would have found it obvious to make the claimed  $A-L^2(R^{13})(R^{14})Cp$  ligand because it is taught in claim 1 of the prior art.

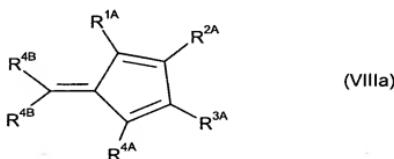
**RESPONSE**

Applicant traverses the rejection of claim 13. The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under § 103 by (1) determining the scope and content of the prior art; (2) ascertaining

the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of non-obviousness.

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) that some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all the claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

Applicant believes Mihan, et al. does not render obvious Applicant's currently pending claim 13, which recites, "A process for preparing cyclopentadiene systems of the formula (VIIa)



where the variables have the following meanings:

$E^{6A}$ - $E^{10A}$  are each carbon, where in each case four adjacent  $E^{6A}$ - $E^{10A}$  form a conjugated diene system and the remaining  $E^{6A}$ - $E^{10A}$  additionally bears a hydrogen atom,

$R^{1A}$ - $R^{4A}$  are each, independently of one another, hydrogen,  $C_1$ - $C_{20}$ -alkyl,  $C_2$ - $C_{20}$ -alkenyl,  $C_6$ - $C_{20}$ -aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part,  $NR^{6A}_2$ ,  $N(SiR^{6A}_3)_2$ ,  $OR^{6A}$ ,

$\text{OSiR}^{6A}_3$ ,  $\text{SiR}^{6A}_3$ , where the organic radicals  $\text{R}^{1A}-\text{R}^{4A}$  may also be substituted by halogens and two vicinal radicals  $\text{R}^{1A}-\text{R}^{4A}$  may also be joined to form a five- or six-membered ring, and/or two vicinal radicals  $\text{R}^{1A}-\text{R}^{4A}$  are joined to form a heterocycle which contains at least one atom from the group consisting of N, P, O and S,

$\text{R}^{6A}$  are each, independently of one another, hydrogen,  $\text{C}_1-\text{C}_{20}$ -alkyl,  $\text{C}_2-\text{C}_{20}$ -alkenyl,  $\text{C}_6-\text{C}_{20}$ -aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part and two geminal radicals  $\text{R}^{6A}$  may also be joined to form a five- or six-membered ring,

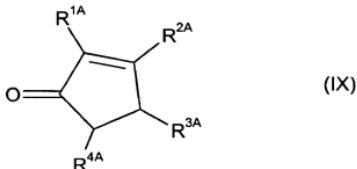
$\text{A}$  is an unsubstituted, substituted or fused, heteroaromatic ring system,

$\text{R}^{2B}$  are each, independently of one another, hydrogen,  $\text{C}_1-\text{C}_{20}$ -alkyl,  $\text{C}_2-\text{C}_{20}$ -alkenyl,  $\text{C}_6-\text{C}_{20}$ -aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part or  $\text{SiR}^{3B}_3$ , where the organic radicals  $\text{R}^{2B}$  may also be substituted by halogens and  $\text{R}^{2B}$  and  $\text{A}$  may also be joined to form a five- or six-membered ring,

$\text{R}^{3B}$  are each, independently of one another, hydrogen,  $\text{C}_1-\text{C}_{20}$ -alkyl,  $\text{C}_2-\text{C}_{20}$ -alkenyl,  $\text{C}_6-\text{C}_{20}$ -aryl or alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20

carbon atoms in the aryl part and two radicals  $R^{3B}$  may also be joined to form a five- or six-membered ring, which comprises the following step:

a'') reaction of an  $A-CR^{2B}R^{2B-}$  anion with a cyclopentenone system of the formula (IX)



In particular, in addition to the differences cited by the Examiner on page 4 of the pending Office Action, Applicant unexpectedly found that when the bridge comprises at least one substituent comprising at least two carbon atoms, the % yield of the cyclopentadiene system produced is surprisingly much higher than compositions not comprising at least one substituent on the bridge comprising at least two carbon atoms. See Example 3 in Applicant's specification.

In light of the above, claims 12-15 are therefore believed to be patentable over Mihan, et al. Accordingly, reconsideration and withdrawal of the rejection is requested.

5. Rejection of Claim 9 Under 35 U.S.C. §103(a)

The Office Action states that claim 9 is rejected under 35 U.S.C. §103(a) as being unpatentable over WO 01/12641 (herein

referred to as "Mihan, et al.") in view of U.S. Patent 5,227,440 (herein referred to as Canich, et al.). In particular, the Office Action states,

Mihan et al. contemplates use of the catalyst in a prepolymerization step (page 17, line 24), however, there is no disclosure as to how this is achieved. The invention of Canich, et al. relates to polymerization of olefins in the presence of catalysts comprising monocyclopentadienyl substituted transition metal complexes. Here, the inventors teach propolymerization as a means to decrease the amount of co-catalyst as well as obtaining the final product in well-defined, particulate form. Canich et al. teaches that the catalyst particles should be treated with monomer to form an amount of polymer on the solid catalyst to increase the weight by at least 50% (col. 15, lines 8-19). One of ordinary skill in the art would have found it obvious to make a prepolymer because such an embodiment is contemplated in Mihan, et al., and he would have found it obvious to use the amount of monomer disclosed in Canich, et al. because such a process has been demonstrated to work successfully in making useful product. The combination is obvious because both references relate to processes for making olefin polymer.

**RESPONSE**

Claim 9 has been cancelled rendering the above rejection moot. Accordingly, withdrawal of the rejection is respectfully requested.

**6. Claim 12**

The Office Action states,

The process of instant claim 12 is neither disclosed nor suggested in the cited references. The use of fulvenes to make bridging cyclopentadienyl ligands is well-established, as shown in Becke et al. (U.S. 6,281,153) and Wenzel (U.S. 6,326,445).

**RESPONSE**

Applicant traverses the rejection of claim 12. In particular,

Applicant traverses the Examiner's blanket statement that the use of fulvenes to make bridging cyclopentadienyl ligands is well-established, which seems is the Examiner's position as to why claim 12 is unpatentable.

However, Applicant respectfully believes the Examiner has not clearly articulated the basis for the conclusion that claim 12 is anticipated by, or alternatively rendered obvious in view of Becke, et al. and/or Wenzel, et al., since the pertinence of both of these documents have not been clearly explained by the Examiner such that either of them, separately or together, would anticipate or render obvious claim 12 under 35 U.S.C. §102 or 35 U.S.C. §103. See MPEP §706, §706.02(j), and 37 C.F.R. §1.104. Accordingly, Applicant believes claim 12 is patentable in view of Becke, et al. and/or Wenzel, et al.

In fact, the Examiner seems to concede claim 12 is patentable given the statement in the currently pending Office Action on page 5, line 20,

The process of instant claim 12 is neither disclosed nor suggested in the cited references.

In light of the above, claim 12 is therefore believed to be patentable over Becke, et al. and/or Wenzel, et al. Accordingly, reconsideration and withdrawal of the rejection is requested.

#### **CONCLUSION**

Based upon the above remarks, the presently claimed subject

matter is believed to be novel and patentably distinguishable over the references of record. The Examiner is therefore respectfully requested to reconsider and withdraw all rejections and allow all pending claims 12-15. Favorable action with an early allowance of the claims pending in this application is earnestly solicited.

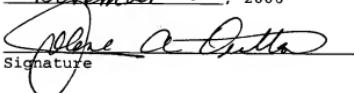
The Examiner is welcomed to telephone the undersigned practitioner with any questions or comments.

Respectfully submitted,

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